

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A system ~~for producing at least two differently focused~~
adapted to produce images of an object at at least two planes and defocused with respect to one
another, the system comprising:

a beam splitter for splitting a beam of radiation from the object into at least two resultant
beams;

at least two sensors separated from one another, each for receiving one of the resultant
beams;

a beam splitting means for splitting a beam of radiation from the object into at least two
resultant beams optical elements located between the beam splitter and the sensors, for creating
different path lengths for the resultant beams from the beam splitter to the respective sensor; and

wherein a path length adjuster for adjusting the optical elements to enable the path
lengths of the two resultant beams to the respective sensors is different be increased or
decreased.

2. (Withdrawn) The system of claim 1 wherein the beam splitting means comprises a prism.

3. (Withdrawn) The system of claim 2 wherein the prism includes dichroic beam splitting elements which split the beam into at least two beams, each of a different colour.

4. (Withdrawn) The system of claim 1 wherein the sensors comprise CCD arrays.

5. (Withdrawn) The system of claim 1 wherein the sensors are located at different distances from respective exit points of the resultant beams from the beam splitting means to thereby produce the different path lengths.

6. (Cancelled)

7. (Currently Amended) The system of claim [[6]] 1 wherein the optical elements comprise[[s]] a pair ~~respective pairs~~ of transparent wedge-shaped members ~~which are movable~~ and the path length adjuster comprises a moving mechanism for moving the wedge-shaped members in each pair relative to one another so as to alter the amount of the wedge through which the resultant beam passes to thereby change the path length of the resultant beam to ~~produce increase or decrease~~ the different path lengths. ~~In this embodiment, the sensors are located at equal distances from the beam splitting means.~~

8. (Withdrawn) The system of claim 1 wherein a beam conditioning element is located between the beam splitting means and the respective sensor.

9. (Withdrawn) The system of claim 8 wherein a plurality of beam conditioning elements are locatable between the beam splitting means and the sensors, and moving means is provided for moving the elements, such as to bring one of the elements in turn into registry with the respective sensor so the resultant beam passes through the said one of the elements.

10. (Withdrawn) The system of claim 1 wherein the beam comprises an electron beam, and the beam splitting means comprises a plurality of sensors arranged along the direction of the path of the electron beam, and wherein some of the electron beam is detected by a first of the sensors and some of the beam passes through the first of the sensors to a subsequent sensor for detection by that sensor to thereby produce the different path lengths.

11. (Currently Amended) A system ~~for producing differently focused images~~ adapted to produce images of an object at at least two planes and defocused with respect to one another, the system comprising:

a beam splitter for splitting a beam of radiation from the object into at least two resultant beams;

at least two sensors separated from one another, each for receiving one of the resultant beams;

a beam splitting means for splitting a beam of radiation from the object into at least to resultant beams; and

an optical element located between at least one of the sensors and the beam splitting means ~~splitting means~~ splitter in the path of the corresponding resultant beam for changing the path length of the beam from the beam ~~splitting means~~ splitter to the sensor to thereby produce resultant beams having two different path lengths which are detected by the respective sensors; and

a path length adjuster for adjusting the optical element to enable the path length of at least one of the resultant beams to be increased or decreased.

12. (Withdrawn) The system of claim 11 wherein the beam splitting means comprises a prism.

13. (Withdrawn) The system of claim 11 wherein the sensors comprise CCD arrays.

14. (Currently Amended) The system of claim 11 wherein the optical element comprises a pair of transparent wedge-shaped members ~~which are movable~~ and the path length adjuster comprises a moving mechanism for moving the wedge-shaped members in each pair relative to one another so as to alter the amount of the wedge through which the resultant beam passes to thereby change the path length of the resultant beam to ~~produce the different~~ increase or decrease path length[[s]].

15. (Withdrawn) The system of claim 14 wherein a beam conditioning element is located between the beam splitting means and the respective sensor.

16. (Withdrawn) The system of claim 15 wherein a plurality of beam conditioning elements are locatable between the beam splitting means and the sensors, and moving means is provided for moving the elements, such as to bring one of the elements in turn into registry with the respective sensor so the resultant beam passes through the said one of the elements.

17. (Withdrawn) The system of claim 16 wherein conditioning elements may include colour imaging filters.

18. (Withdrawn) A system for producing differently focused images of an object, comprising:

- at least two sensors separated from one another;
- a beam splitting means for splitting an incoming beam of radiation from the object into at least two resultant beams; and
- a beam conditioning member having:
 - (c) a plurality of beam conditioning elements; and
 - (d) moving means for moving the member so as to bring the selected one of the elements into alignment with the respective sensor.

19. (Withdrawn) The system of claim 18 wherein the beam splitting means comprises a prism.

20. (Withdrawn) The system of claim 18 wherein the sensors are located at different distances from respective exit points of the resultant beams from the beam splitting means to thereby produce the different path lengths.

21. (Withdrawn) The system of claim 18 wherein the different path lengths are provided by the location of optical elements between the beam splitting means and the sensors, so as to create a different path length of the resultant beam from the beam splitting means to the respective sensor.

22. (Withdrawn) The system of claim 21 wherein the element includes a pair of transparent wedge-shaped members which are movable relative to one another so as to alter the amount of the wedge through which the resultant beam passes to thereby change the path length of the resultant beam to produce the different path lengths.

23. (Currently Amended) A method of producing ~~differently-focused~~ images of an object defocused with respect to one another and at at least two planes, the method comprising, including:

providing at least two sensors separated from one another;

splitting a beam of radiation emanating from the object into at least two resultant beams, and directing each resultant beam to a respective one of the sensors; and

causing the path length of the ~~two~~ resultant beams to the respective sensors to be different;

directing at least one of the resultant beams through an adjustable optical element and increasing or decreasing the corresponding path length by adjusting the optical element; and

collecting images of the object that are defocused with respect to one another with said respective sensors.

24. (Withdrawn) The method of claim 23 wherein the differently focused images are comprised of at least one negatively focused image, an in-focus image, and at least one positively focused image.

25. (Withdrawn) A system for determining movement of an object, including:

at least one sensor for receiving a beam of radiation from the object and for capturing at least two sequential images of the object which are time delayed with respect to one another;
means for comparing the images with respect to one another so as to determine a difference between the images; and
means for determining whether the object has moved based on the comparison of the images.

26. (Withdrawn) The system of claim 25 wherein the images comprise phase images of the object.

27. (Withdrawn) The system of claim 25 wherein the comparison is made by the processing means based on a difference between the images.

28. (Withdrawn) The system of claim 25 wherein comparison of the images and the determination of whether the object has moved may be performed by a single processing means.

29. (Withdrawn) The system of claim 28 wherein the determination of whether the object has moved is made by creating a phase image of the object from the images which are captured by the sensor and inspecting the phase image to observe light and dark shadows on details in the image, and thereby determining whether the object is moving towards or away from the sensor.

30. (Withdrawn) A method of determining movement of an object, including:
detecting a beam of radiation from the object by a sensor;
producing at least two time delayed images of the object;
comparing the images with respect to one another; and
determining if the object has moved based on a comparison of the images.

31. (New) A camera for producing a phase image of an object, comprising a system as claimed in claim 1.

31. (New) A camera for producing a phase image of an object, comprising a system as claimed in claim 11.

33. (New) A method of producing a phase image of an object, comprising:
producing images of the object defocused with respect to one another and at at least two planes, including:

- (i) providing at least two sensors separated from one another;
- (ii) splitting a beam of radiation emanating from the object into at least two resultant beams, and directing each resultant beam to a respective one of the sensors;
- (iii) causing the path lengths of the resultant beams to the respective sensors to be different;
- (iv) directing at least one of the resultant beams through an adjustable optical element and increasing or decreasing the corresponding path length by adjusting the optical element; and
- (v) collecting images of the object that are defocused with respect to one another with said respective sensors.